



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

LIBRARY

FILE: 6446.6d3a

2004 AUG 25 A 10:03

LOG F-10660

FERNALD

5625

SR-6J

AUG 24 2004

REPLY TO THE ATTENTION OF:

Mr. Johnny W. Reising  
United States Department of Energy  
Feed Materials Production Center  
P.O. Box 398705  
Cincinnati, Ohio 45239-8705

RE: Groundwater Remedy Evaluation  
and Field Verification

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's (U.S. DOE) groundwater remedy evaluation and field verification plan. This plan evaluates two remedies without well-based re-injection, one of which includes induced recharge into the storm sewer outfall ditch.

U.S. EPA has enclosed comments on the groundwater remedy evaluation plan that must be addressed. Therefore, U.S. EPA disapproves the groundwater remedy evaluation and field verification plan. U.S. DOE must submit a revised plan within thirty (30) days receipt of this letter.

Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,

James A. Saric  
Remedial Project Manager  
Federal Facilities Section  
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO  
Jamie Jameson, Fluor Fernald  
Tim Poff, Fluor Fernald

TECHNICAL REVIEW COMMENTS ON  
"GROUNDWATER REMEDY EVALUATION AND  
FIELD VERIFICATION PLAN"

FERNALD CLOSURE PROJECT

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric  
Section #: 2.2.1 Page #: 6 Line #: Not Applicable (NA)  
Original Specific Comment #: 1

Comment: Figure 2.2.1 shows little more than the general agreement of plume geometry between the data dated December 31, 2003, and the data dated December 31, 2002 (updated with 1 year of modeling). Other than this, it is unclear what other conclusions can be drawn from the figure concerning model calibration. A map showing the residual concentrations between the two initial conditions would provide additional data to allow quantitative comparison of the two potential initial conditions. In addition, running the model for 1 year and comparing the results to the data set from December 31, 2003, provides little information on the overall transport model's calibration and ability for long-term prediction. Considering the significant amount of groundwater quality data collected over the years, a much more rigorous transport model calibration could probably be conducted.

Commenting Organization: U.S. EPA Commentor: Saric  
Section #: 2.2.1 Page #: 6 Line #: NA  
Original Specific Comment #: 2

Comment: The text states that the initial conditions based on the December 31, 2003, data show higher uranium concentrations than the initial uranium concentrations based on the December 31, 2002, data. It is unclear how concentrations in the aquifer can be increasing. This statement may intend to say that the December 31, 2003, uranium concentrations are higher than the initial conditions based on the December 2002 data updated through 1 year of modeling. The statement and its significance should be clarified.

Commenting Organization: U.S. EPA Commentor: Saric  
Section #: 2.2.1 Page #: 6 Line #: NA  
Original Specific Comment #: 3

Comment: The text states that the wellhead concentrations predicted from the VAM3D transport runs more closely agree with observed concentrations when the most recent data are used as the initial condition data set. The phrase "most recent data" is confusing. If it refers to the December 31,

2003, data set, then it is unclear which data set the predicted wellhead concentrations are compared to after the VAM3D transport run is complete. This statement and its significance should be clarified.

Commenting Organization: U.S. EPA                      Commentor: Saric  
Section #: 2.2.1                      Page #: 6                      Line #: NA  
Original Specific Comment #: 4

Comment: The text states that an unexpected benefit to using a new initial condition is a cleanup time reduction of 4 to 5 years if all other variables are held constant. This "new" initial condition may also affect the amount of treatment required to meet the discharge limits. Because prior agreements on discharge limits were made based on the "old" initial conditions, the text should clarify the impact the new initial condition would have on the treatment required to meet discharge limits. Depending on the significance of this evaluation, additional discussion may be required regarding which initial condition is best suited for decision-making purposes.

Commenting Organization: U.S. EPA                      Commentor: Saric  
Section #: 2.2.1                      Page #: 6                      Line #: NA  
Original Specific Comment #: 5

Comment: The text states that when more recent "direct push" sampling data overlapped with older data at the same location, the more recent data were used. If multiple direct-push sampling data were collected from the same location in 2003, the data should be averaged to allow comparison with the groundwater monitoring well data set, which was averaged for the 2003 time period.

Commenting Organization: U.S. EPA                      Commentor: Saric  
Section #: 2.2.1                      Page #: 6                      Line #: NA  
Original Specific Comment #: 6

Comment: The figure's numbers are incorrect and should be corrected throughout the document.

Commenting Organization: U.S. EPA                      Commentor: Saric  
Section #: 2.2.1                      Page #: 6                      Line #: NA  
Original Specific Comment #: 7

Comment: The text refers to two figures that show the horizontal and vertical semi-variograms for the input total uranium data but does not discuss their significance. The report should provide additional detail on the significance of these figures and their impact on developing the initial conditions.

Commenting Organization: U.S. EPA  
Section #: 2.3 Page #: 7  
Original Specific Comment #: 8

Comment: The text states that the operable unit (OU) 5 Record of Decision (ROD) discharge limits could be met using the pumping rate defined for Approach C. The text does not contain or refer to supporting documentation for this statement. The text should be revised to contain or refer to supporting documentation for this statement.

Commenting Organization: U.S. EPA  
Section #: 3.2.2 Page #: 10  
Original Specific Comment #: 9

Comment: The text states that Figure 3.2.1 illustrates how recharge is distributed in model nodes representing the storm sewer outfall ditch. The text should also state how the recharge was introduced into the model and at what layers. For example, the text should clarify if recharge was simulated by (1), a series of extraction wells open to various layers, (2) as a "stream" segment with an assumed conductance value for the stream bed, or (3) simply using a greater recharge number. The 500-gallon-per-minute recharge rate's method of introduction into the model may have significantly different impacts on groundwater flow and quality results.

Commenting Organization: U.S. EPA  
Section #: 4.1 Page #: 12  
Original Specific Comment #: 10

Comment: The text states that the initial conditions used for Approach C and Approach C Improved differ from the initial conditions used in the comprehensive groundwater strategy report. The text should clearly state that the change in initial conditions will result in a cleanup time reduction of 4 to 5 years. The text should also evaluate the impact of this change of initial conditions on the treatment required to meet the discharge limits.

Commenting Organization: U.S. EPA  
Section #: 5.0 Page #: 16  
Original Specific Comment #: 11

Comment: The text states that upon completion of the first field verification exercise, the remedy system will be calibrated. This statement is unclear. The text should specify which system elements will be calibrated and the calibration methods.

Commenting Organization: U.S. EPA  
 Section #: 5.0 Page #: 16  
 Original Specific Comment #: 12

Commentor: Saric  
 Line #: NA

Comment: The text presents an aggressive approach for collecting a significant amount of groundwater elevation data; however, the text does not include comparison of pre- and post-injection shutdown water levels to those predicted by the groundwater model. This comparison would allow a very good opportunity to test the calibration and prediction capabilities of the groundwater flow model. The report should include a groundwater flow model calibration effort complete with pre-established calibration targets and analysis. The same should be done with the data collected from the storm sewer outfall ditch recharge capability.